ACC.12
61st Annual Scientific Session & Expo
ACC-i2 with TCT innovation in intervention

E1987
JACC March 27, 2012
Volume 59, Issue 13

Valvular Heart Disease

PROGNOSTIC VALUE OF MYOCARDIAL INJURY FOLLOWING UNCOMPLICATED TRANSCATHETER AORTIC VALVE IMPLANTATION

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Sunday, March 25, 2012, 9:30 a.m.-10:30 a.m.

Session Title: TAVR: Real World Outcomes and Potential Complications
Abstract Category: 11. Valvular Heart Disease: Therapy
Presentation Number: 1151-280

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Background: Very few data exist about the clinical significance of myocardial injury (MI) occurring after transcatheter aortic valve implantation (TAVI) procedures. We sought to determine the incidence and the prognostic value of MI associated with uncomplicated TAVI.

Methods: Overall 68 consecutive patients (age 81.1±6.1 years, female 44%) who underwent TAVI procedure were included (Corevalve Medtronic; aortic valve area 0.53±0.12 cm2; n=65 transfemoral approach, n= 3 subclavian approach;). Patients who died within 24 hour following TAVI precluding cardiac biomarker measurements (n=3: 1 cardiac tamponade; 1 life-threatening arrhythmias; 1 TAVI failure) and those with major procedural complications were excluded (n=3: 1 ictus; 1 lung failure; 1 irreversible shock). Cardiac troponin I (cTnI) levels were determined at baseline, 6, 12, 24, 48, and 72 h following TAVI. Left ventricular ejection fraction (LVEF) were measured (Simpson method) at baseline, after TAVI, at 1, 6 and 12 months by 2D-echo. Acute kidney injury (AKI) was defined according Valve Academic Research Consortium (VARC).

Results: TAVI was associated with some degree of MI in 100% of the patients as determined by a rise in cTnI (median 3.49 ± 5.35 ng/ml; range from 0.26 to 26.9 ng/ml). According VARC criteria, no peri-procedural myocardial infarction occurred. The development of AKI was found in 15% (9/62) of patients, and AKI was associated with a higher increase in biomarkers of MI (p = 0.008). At 1 year follow-up: 4 patients died, and 8 patients were hospitalized for congestive heart failure. Overall a 3.7± 6.7% improvement of LVEF was found following TAVI. The degree of MI (as peak cTnI) was not associated with a recovery of LVEF at 1 year follow-up (p = 0.981). By Cox analysis, the development of AKI was an independent predictor of poor prognosis at 1-year (mortality and HF) (HR: 6.32, 95% CI 1.57 to 25.46, p < 0.009), but not the degree of MI (p=0.578).

Conclusions: In our center, TAVI (non transapical approach) was systematically associated with some degree of MI, with development of AKI determining a higher degree of MI. The development of AKI rather than the degree of MI was associated with a poor prognosis after uncomplicated TAVI.